

RF Excited Gas Laser

ABSTRACT OF THE DISCLOSURE

RF excited gas laser according to present invention consists of an elongated electronics compartment having elongated external fins; an RF power supply placed inside electronics compartment; a pair of endplates attached to the opposite ends of the electronics compartment; a sealed laser tube comprising of a metal tube having an external surface, a pair of endcaps at the opposite ends of the metal tube forming a vacuum envelope for containing a laser gas, a pair of elongated electrodes inside of the metal tube configured for coupling to said RF power supply through RF coupling means; laser resonator mirrors placed on the endcaps at the opposite ends of the tube forming a laser resonator aligned with the RF gas plasma discharge produced between said electrodes; a sheet-metal cover enclosing the laser tube and the electronics compartment forming a laser assembly having at least one pair of intake openings and at least one pair of exhaust openings for the cooling air to flow through the laser assembly; and at least one pair of fans placed at the intake openings of the laser assembly, wherein laser tube is placed inside the laser assembly exposing all 4 sides of tube to air flow and is flexibly attached to the endplates. Cooling air enters the laser assembly through intake openings and flows through the laser assembly over the external surface of the tube and over the external fins of the electronics compartment. Cooling air then exits through the exhaust openings. Present invention is characterized by lower cost and simpler laser tube and laser assembly design as well as more efficient forced air cooling of heat dissipating laser tube and RF power supply.